TETRA TECH NUS, INC.
55 Jonspin Road ▪ Wilmington, MA 01887-1020
(978) 658-7899 ▪ FAX (978) 658-7870 ▪ www.tetratech.com

RACI-EPA-2691

Contract No. 68-W6-0045

November 20, 2000

Mr. Ronald Jennings
U.S. Environmental Protection Agency
One Congress Street, Suite 1100, HBT
Boston, Massachusetts 02114-2023

Subject: Transmittal of the Draft Technical Memorandum - Remedial Alternatives Screening Report
Raymark – OU3, Remedial Investigation/Feasibility Study
RAC I W.A. No. 002-RICO-01H3

Dear Mr. Jennings:

Enclosed are two copies (one bound and one unbound) of the Draft Technical Memorandum – Remedial Screening Alternatives Report for the OU3 study area. As instructed by you, I have also transmitted, under separate cover, two copies of the report to Mr. Ronald Curran of the Connecticut Department of Environmental Protection (CTDEP), two copies of the report to Ms. Laureen Borachaner of the U.S. Army Corps of Engineers (ACOE), and one copy of the report to Ms. Kathleen Conway, Counsel for the Raymark Advisory Group. In addition, two copies of the report will be hand delivered to the Raymark Advisory Group on November 21, 2000.

If you have any questions regarding this transmittal, please contact me.

Very truly yours,

Heather M. Ford
Project Manager

PMO –@

HMF:rp

Enclosures

c: H. Horahan (EPA) w/o enc.
R. Curran (CTDEP) w/enc. (2)
L. Borachaner (ACOE) w/enc. (2)
K. Conway (RAC) w/enc. (1)
RAC – By Hand (2)
A. Ostrofsky (TtNUS) w/o enc.
File N7491 -1.0 w/o enc./N7491-3.4 (orig) w/enc.

RI00573D

DRAFT
TECHNICAL MEMORANDUM

RAYMARK-OPERABLE UNIT 3
STRATFORD, CONNECTICUT

RESPONSE ACTION CONTRACT (RAC), REGION I

For
U.S. Environmental Protection Agency

By
Tetra Tech NUS, Inc.

EPA Contract No. 68-W6-0045
EPA Work Assignment No. 002-RICO-01H3
TtNUS Project No. N7491

November 2000

TETRA TECH NUS, INC.

DRAFT
TECHNICAL MEMORANDUM

RAYMARK-OPERABLE UNIT 3
STRATFORD, CONNECTICUT

RESPONSE ACTION CONTRACT (RAC), REGION I

For
U.S. Environmental Protection Agency

By
Tetra Tech NUS, Inc.

EPA Contract No. 68-W6-0045
EPA Work Assignment No. 002-RICO-01H3
TtNUS Project No. N7491

November 2000

Heather M. Ford
Project Manager

George D. Gardner, P.E.
Program Manager

TABLE OF CONTENTS
DRAFT TECHNICAL MEMORANDUM
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
RAYMARK - OU3
STRATFORD, CONNECTICUT

TABLE OF CONTENTS (cont.)
DRAFT TECHNICAL MEMORANDUM
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
RAYMARK - OU3
STRATFORD, CONNECTICUT

TABLES

NUMBER

FIGURES

NUMBER

REFERENCES

ACRONYMS AND ABBREVIATIONS

ARARs	Applicable or Relevant and Appropriate Requirements
CERCLA	The Comprehensive Environmental Response, Compensation, and Liability Act of 1980. Amended by SARA in 1986. Also called the Superfund Law.
CFR	Code of Federal Regulations
COC	Contaminant of Concern
CT DEP	Connecticut Department of Environmental Protection
DNAPL	dense non-aqueous phase liquid
ELUR	Environmental Land Use Restrictions
EPA	U.S. Environmental Protection Agency
°F	degree Fahrenheit
FS	Feasibility Study
GB	State of Connecticut classification for non-drinking water sources
GRA	General Response Action
HNUS	Halliburton NUS Corporation
kg	kilogram
LDR	land disposal restriction
µg/kg	microgram per kilogram
mg	milligram
mg/kg	milligram per kilogram
NCP	National Oil and Hazardous Substances Contingency Plan
NESHAP	National Emission Standards for Hazardous Air Pollutants
No.	number
NPDES	National Pollutant Discharge Elimination System
OU	Operable Unit
PCB	polychlorinated biphenyl
PRG	Preliminary Remediation Goal
RAO	Remedial Action Objective
Raymark Facility	Raymark Industries, Inc. Facility
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	(EPA's) Record of Decision. Documents the selection of a cost-effective Superfund remedy.
SPLP	Synthetic Precipitation Leaching Procedure
SVOC	Semivolatile Organic Compound
TBC	To Be Considered
TCE	Trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure
TSCA	Toxic Substances Control Act
TSD	(RCRA) Treatment, Storage, and Disposal
VOC	Volatile Organic Compound

1.0 INTRODUCTION

This Draft Technical Memorandum, Remedial Alternatives Screening, was prepared by Tetra Tech NUS, Inc. (TtNUS) at the request of the U.S. Environmental Protection Agency (EPA) under Contract No. 68-W6-0045. This Technical Memorandum describes the remedial alternative screening process for the Raymark Operable Unit 3 (OU3) Area I study area under Work Assignment No. 002-RICO-01H3. The alternatives screening was performed in accordance with the Draft Work Plan dated January 1999 and the EPA guidance document, *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA,* October 1988. The remedial alternatives screening was prepared based on the *Final Remedial Investigation Raymark – Ferry Creek – Operable Unit 3* (TtNUS, 1999).

The objective of this memorandum is to evaluate the Area I study area for general site cleanup options and to present an estimate of the cost associated with each alternative considered.

This Technical Memorandum is presented in one volume. Section 1.0 presents the introduction, Section 2.0 identifies and screens remedial technologies and process options, and Section 3.0 briefly discusses the future assembly of alternatives.

1.1 Background

This section provides a summary of the history of the study area and vicinity (see Figure 1-1), a summary of past operations at the Raymark Facility, a description of the study area and setting, and a listing of other on-going activities associated with the Raymark Facility.

This report addresses the Raymark OU3 study area. OU3 is one of the eight operable units at the Raymark Industries, Inc. Superfund site. All eight of the Raymark Operable Units are in various stages of investigation (see Section 1.1.5 for details and Figure 1-2 for the locations).

1.1.1 History of Raymark Facility and Environs

The OU1-Raymark Facility, formerly named Raybestos - Manhattan Company, was located at 75 East Main Street in Stratford, Fairfield County, Connecticut. The Raymark Facility operated

from 1919 until 1989, when the plant was shut down and permanently closed. Based on Stratford tax map information, the OU1-Raymark Facility occupied 33.4 acres and manufactured friction materials containing asbestos and non-asbestos components, metals, phenol-formaldehyde resins, and various adhesives. Primary products were gasket material, sheet packing, and friction materials including clutch facings, transmission plates, and brake linings. As a result of these activities, soils and groundwater at the OU1-Raymark Facility became contaminated.

Between 1919 and 1984, low-lying portions of the OU1-Raymark Facility were filled with manufacturing waste materials from various plant operations. The filling of those areas occurred over the life of the facility operations, and progressed essentially from north to south, across the property. New buildings and parking areas were constructed over these filled areas as the manufacturing facility expanded.

The OU1-Raymark Facility was underlain by an extensive, subsurface drainage system network. This network collected water and wastes from the manufacturing operations and diverted it into the facility drainage system. The system also collected stormwater runoff. These liquids were transported through the drainage system network, mixed with lagoon wastewaters, and discharged to Ferry Creek.

During peak operations at the OU1-Raymark Facility, approximately 2 million gallons of water were used for plant processes each day. Municipal water was used for both contact and non-contact cooling water. To supplement this source, an additional on-site supply well was installed. The well, located in the northeastern corner of the facility, was used for non-contact cooling water. Facility water was recirculated, with some percentage reinjected into the on-site well; the unused well water and municipal water were discharged through the facility drainage system. Wastewater from facility operations was collected and discharged to a series of four settling lagoons located in the southwestern corner of the facility, and along the southern property boundary near Longbrook Avenue and the Barnum Avenue Cutoff. The wastewater consisted of wastewater from the acid treatment plant, wet dust collection, paper making processes, non-contact cooling water, and wastewater from solvent recovery plant operations. The lagoons also received stormwater drainage and surface water runoff.

Solids were allowed to settle in Lagoon Nos. 1, 2, and 3 prior to discharge of clarified wastewater and unsettled solids to Lagoon No. 4, that in turn discharged directly into Ferry Creek. Discharge of wastewater to Lagoon Nos. 1, 2, and 3 ceased in 1984. These three lagoons were closed in December 1992 and January 1993. During the fall of 1994, stormwater drainage that exited the Raymark Facility through Lagoon No. 4 was diverted around this lagoon and connected directly to the storm sewer, which ultimately discharges to Ferry Creek. Lagoon No. 4 was closed in early 1995. Refer to Figure 2-1 for the locations of the former lagoons.

During the operation of the lagoons, the settled material in the lagoons was periodically removed by dredging. During the facility's 70 years of operation, it was common practice to dispose of both this dredged lagoon waste and other manufacturing waste as "fill" material (referred to as "Raymark soil-waste") both at the Raymark Facility and at various locations in Stratford.

A number of locations where Raymark soil-waste was disposed were found to be contaminated with levels of asbestos, lead, and polychlorinated biphenyls (PCBs) that posed a threat to public health. To abate the potential health threat to residential properties, residential locations were remediated under EPA CERCLA time-critical removal actions during 1993 to 1996. The excavated material from these residential locations was stored and ultimately placed under the cap at the OU1-Raymark Facility. Waste from one municipal property, Wooster Middle School, was also excavated, stored, and ultimately placed under the cap at the OU1-Raymark Facility.

A substantial number of field investigations relating to soil, sediment, surface water, biota, and groundwater have been conducted at the Raymark Facility and its environs.

1.1.2 Facility Operating History

The following narrative presents a summary of plant operations and waste handling practices for Raymark's manufacturing operations; see the OU1 Remedial Investigation (RI) (HNUS, 1995) for further details.

1.1.2.1 Phenolic Resin Manufacturing

Solid and liquid phenolic resin was manufactured at the Raymark Facility. The resin was produced in five or six pressure vessels; companion tanks held the raw product. After production, the liquid resins were transferred to the plant floor to manufacture plant goods or to set in order for use in solid form. Prior to use, the solid resins were pulverized on site to meet product specifications, and then transferred to the plant floor for use.

1.1.2.2 Brake Lining Production

Brake lining production began by adding dry asbestos materials, liquid phenolic resins, and solvents (to thin the resins) to the mixers located on the plant floor. The mixers operated for approximately 1 hour until the liquid resin had penetrated and coated all the dry materials. This mixture, resembling a soft heavy mud, was formed into brake lining parts that were then baked in ovens for 6 hours. The end product, a hard material, was machined to the specifications of a finished brake lining. As necessary, materials that were trimmed and ground during the machining operations and not used in the finished product were disposed of on or off site as fill/soil-waste material; after 1984, these processed wastes were shipped off site in containers.

The waste from the machining operations was collected in a wet-type dust collection system. Particulates collected from the system were mixed with process water and pumped to the on-site lagoons as a 90/10 water/dust slurry mixture. The slurry mixture settled out in the lagoons and eventually filled them. When a lagoon was filled, the slurry mixture would be diverted to another lagoon, to allow time (several months) to dewater. The dewatered material in the lagoon was excavated and disposed of either on site or off site. After 1984, the waste particulates were collected in dry dust collectors and disposed of off site in one-cubic yard bags.

1.1.2.3 Standard Transmission Clutch Plates

The process of producing clutch plates began by creating a mixture of asbestos, other components, and water and forming a paper-like sheet of material. This sheet was rolled onto

a machine roller, saturated with phenolic resin, and then oven dried and cured. The clutch plates were machined to specifications from these sheets and the finished clutch plate was bonded to a steel core. As in the brake lining production, the manufacturing process produced machining particulates that were collected in the dust collection system, mixed into a wet slurry, and pumped to the lagoons to settle. This system was replaced in 1984, by the dry dust collectors.

In the early 1980s, the process was modified to allow water to be reused and captured into the manufacturing process resulting in no discharge of water. In addition, the dry asbestos used in the original manufacturing of the paper-like material was replaced with a cotton-type material, so the product became asbestos-free.

The Raymark Facility also molded raw steel into a steel core onto which the clutch plate was mounted. After molding, the steel core was degreased, etched to specification, coated with a phenolic resin, and allowed to dry. The clutch plate was then mounted to the steel core.

A specialty heavy-duty clutch was also manufactured on the Raymark Facility. The process of mixing the asbestos, resins, and water to produce heavy-duty clutches was similar to that used to produce the standard transmission clutch plates.

1.1.2.4 Gasket Material Manufacturing

Gasket material was produced in large rubber sheets. The rubber was composed of naphtha, toluene, asbestos, phenolic resins, and various fillers. The process began by mixing asbestos, latex, rubber cement, and rubber together until the mix was homogeneous. The mix was then loaded onto a roller machine where it was flattened into a sheet. The sheet was removed and laid out on a large table for cutting. The gaskets were then cut to specification.

The trim from cutting was pulverized and re-used in the process. Vapors were collected and passed through the activated carbon solvent recovery plant. Prior to the mid-1980s, no vapor collection occurred.

1.1.2.5 Disc Brake Pad Manufacturing Operations

Asbestos, glass, and semi-metallic disc brakes were manufactured at the Raymark Facility. Asbestos disc brakes were composed of asbestos, phenolic resin, and fillers; glass disc brakes were composed of fiberglass, phenolic resin, and fillers; and semi-metallic disc brakes were composed of steel wool, phenolic resin, and fillers. The operations to process these disc brake pads involved mixing components in plant mixers until a homogenous mixture was coated completely with phenolic saturate, pouring the mixture into electronically heated molds to form a hard part, and machining this part into the needed specified product size.

Waste generated from the machining process was collected in the dust collector system, and transported as described above, as a water/waste slurry mixture to the on-site lagoons. After 1984, dry dust collectors collected the particulate matter and the material was disposed of off site in 1-cubic yard bags. The trim and off-specification material, if not pulverized for reuse, was disposed of as fill.

1.1.2.6 Miscellaneous Activities

The following activities also occurred at the Raymark Facility:

- Coal-fired Steam Generation – The Raymark Facility generated steam from August 1919, until the early 1940s. Steam was generated from coal-fired steam boilers. The coal was delivered by rail directly onto the facility by a railroad spur that has since been removed. The coal was stored in the area surrounding the boiler house and transported by heavy equipment around the plant. No figures are available on the quantities of coal used.

- Steam Boilers – The coal-fired steam boilers were converted to oil in the early 1940s. Number six fuel oil was stored in two 50,000 gallons tanks. No figures are available on quantities of oil used.

- Material Storage – Numerous tanks located throughout the plant stored raw product, manufactured goods not yet turned into a product, and waste products remaining from the various manufacturing processes.

- Dry Trim Reclamation – The materials that were trimmed from the baked products (dry trim) were stored outside under a roof on the asphalt pavement. The trim re-use process consisted of using hammer mills to pulverize the waste trim. As dry trim re-use occurred more frequently during later years of facility operations, particulates from this process were collected in a separate dry dust collector system and bagged for disposal.

- Finished Products – These materials were stored on site pending off-site shipment to customers.

1.1.3 Environmental Permits

The Raymark Facility was subject to the requirements of both state and Federal Permits.

1.1.3.1 RCRA Activities

Raymark filed a Notification of Hazardous Waste Activity form on August 15, 1980, under the name of Raybestos Friction Materials Company. This form indicated that the company generated, treated, stored, and disposed of hazardous wastes such as chlorinated solvents, acetone, formaldehyde, toluene, sludge from lime treatment generated from steel finishing operations, asbestos, acids, phenols, methyl ethyl ketone, and ignitable, corrosive, toxic wastes.

On November 12, 1980, the notification was expanded to include the activities and quantities listed below for each waste activity. However, the quantities listed below were the total permitted quantities and not the actual quantities or units reportedly used at Raymark.

- The Raymark Facility was permitted to process more than 2.5 billion gallons of lead-contaminated waste liquid each year in the on-site lagoons. It is estimated that 6 million gallons of the 2.5 billion gallons were treated each year.

- The Raymark Facility container storage area was permitted to handle approximately 23 million gallons of toxic, ignitable, corrosive, and acidic wastes each year.

- The Raymark Facility tank storage area was permitted to handle approximately 10 million gallons of waste yearly.

- The Raymark Facility incinerator was permitted to process approximately 240,000 gallons per year of toxic and ignitable wastes.

In 1986, Raymark filed a permit application for the various Raymark Facility activities under the name of Raymark Industries, Inc. At that time, the original RCRA Part A notification was re-filed and the on-site activities and waste generated were significantly reduced. The activities described in the revised submittal included 7,040 gallons of liquid container waste, 150 cubic yards of solid container waste stored on the property, and an approximately 7-acre landfill on the property. The "landfill" was comprised of the lagoons previously located along the southern boundary of the Raymark Facility. Each of these activities appeared to include the handling of ignitable, toxic, corrosive, and toluene-contaminated wastes.

The facility closed in September 1989. In 1990, pursuant to a RCRA 3007 information request, Raymark indicated it still had significant quantities of waste and unused products remaining on site. Some of these waste products were 400,000 gallons of asbestos slurry in tanks and 1,700 cubic yards of unfinished asbestos product. These wastes were removed from the Raymark Facility between 1990 to 1994.

During the operations of the Raymark Facility, wastewaters were routed into four lagoons. Three of the lagoons stopped receiving waste in 1984, and were temporarily closed in December 1992 and January 1993, under an EPA order. The fourth lagoon was temporarily closed in 1994. In 1993 on-site storm water was rerouted around Lagoon No. 4 so the storm water no longer discharged into Lagoon No. 4. The facility cleanup/remediation was conducted under the CERCLA program, and the on-site sources (lagoons, tanks, incinerator) were removed and/or remediated as part of the long-term solution.

1.1.3.2 Wastewater Activities

The Raymark Facility had a 2.5 million gallon per day water and wastewater discharge flow from the plant operations into the lagoons for discharge into Ferry Creek. This discharge was permitted under the State of Connecticut National Pollution Discharge Elimination System (NPDES) program from the early 1970s until the early 1990s, with volumes decreasing as plant activities were reduced. The activities permitted included: acid treatment plant wastewater, dust collection system wastewater, noncontact cooling water, and solvent recovery plant wastewater. A separate permit was issued for an extraction well installed on site to remove groundwater contaminated with toluene from the aquifer. The groundwater was discharged to the sanitary sewer. The toluene contamination was the result of a spill that occurred on site in 1984.

1.1.4 Study Area Description and Setting

The Raymark OU3 Area I study area includes Ferry Creek, other ecological areas, and adjacent properties impacted by the Raymark Facility soil-waste. These locations are downgradient of the Raymark Facility and may have been affected by wastewater discharge, stormwater drainage, surface water runoff, manufacturing waste direct deposition, and/or groundwater contaminant migration. The name designations used for locations and properties in this report are those that have become convention for the study area, as established by EPA.

Ferry Creek is located approximately 500 feet west of and parallel to the Housatonic River. It flows south from the Interstate 95 overpass through the Morgan Francis Property, under East Broadway Street and Ferry Boulevard, through the Spada Property, to the non-functioning flood control barrier (spring-loaded sluice gate system that is stuck partially open by debris) at Broad Street, and discharges into the Housatonic River. The OU3 study area also includes "other ecological areas impacted by Raymark Facility waste", which are defined by the delineated wetland boundaries along Ferry Creek. Wetlands have been delineated throughout the study area. The Area I study area is comprised of the following properties:

- **Area A-1 (Upper Ferry Creek – Morgan Francis Property)** is located approximately 600 feet south of the Raymark Facility property. The boundaries consist of Interstate 95 to the north and northwest, residential properties along Blakeman Place to the west, Ferry Boulevard and East Broadway Street to the east and northeast, and residential properties along Harris Court to the south. It encompasses a portion of Ferry Creek, which flows south from Interstate 95 to Ferry Boulevard; some commercial properties that EPA refers to as Salce Construction, Preferred Products, Shock's Autobody, and the Morgan Francis property; and the State of Connecticut properties near Interstate 95 and the triangle-shaped parcel of land between Ferry Boulevard and East Broadway Street. It is noted that "clean" fill was placed on a portion of the Morgan Francis property in Area A-1. Area A-1 covers approximately 11.1 acres, including approximately 0.44 acres of wetlands (including the creek channel). The upland vegetation at the Morgan Francis property consists of early successional open field vegetation, with areas of shrubs and trees along the property boundary fenceline and along the Ferry Creek channel. Wetland vegetation along Ferry Creek in this area is sparse since much of the creek channel is rip-rapped and has steep-sided banks. The State of Connecticut properties near Interstate 95 and the triangle-shaped parcel of land between Ferry Boulevard and East Broadway Street consist of mowed grass areas. A small swale (approximately 500 square feet), dominated by common reed is present in the triangle-shaped parcel. The commercial properties (Salce Construction, Preferred Products, and Shock's Autobody) are unvegetated developed properties, with the exception of landscape plantings. The area surrounding the buildings on these commercial properties are typically covered with pavement or gravel.

- **Area A-2 (Upper Ferry Creek – Commercial Property)** is located approximately 50 feet east of Area A-1. The boundaries consist of Ferry Boulevard to the west, Ferry Creek and an undeveloped lot to the south and east, residential properties along Willow Avenue to the north, and Broad Street to the south. It encompasses numerous commercial properties that EPA refers to as the Blue Goose Restaurant, Rotary Ski Shop, Fordham Realty, Dan Perkins Subaru, Veras Motors, Ink Masters Shop, and an empty lot at 170 Ferry Boulevard. Area A-2 covers approximately 10.3 acres, none of which is wetlands. The area surrounding the commercial property buildings are generally paved parking lots with some landscape plantings.

- **Area A-3 (Upper Ferry Creek - Wetlands)** runs parallel to Housatonic Avenue. The boundaries consist of Area A-2 to the west, residential properties along Housatonic Avenue to the east, residential properties along Willow Avenue to the north, and Broad Street to the south. It includes undeveloped wetlands and uplands, with Ferry Creek flowing south along the western border. A non-functioning flood control barrier/hydraulic sluice gate system is located to the south where Ferry Creek and Broad Street intersect. Area A-3 covers approximately 7.1 acres, including approximately 2.4 acres of wetlands (including the creek channel). Generally, Area A-3 vegetation is dominated by common reed (*Phragmites australis*) along the upland creek bank and wetland area. The upland bank along Ferry Creek has a narrow tree line with a dense understory of shrubs and vines. A small grassland area of approximately one-quarter acre is also present at the north end of Area A-3, east of the Blue Goose restaurant.

Remedial options were developed to address contamination in each of the above three areas. Remedial options are presented for each medium within the Area as indicated:

- **Soils** include any material that is not located within the designated wetland and Ferry Creek channel locations (A-1, A-2, A-3), and is located above the groundwater table.
- **Wetland soil** includes soil and/or sediment material located within the delineated wetlands (A-1, A-3).
- **Sediment** is defined as the material within the Ferry Creek channel (A-1, A-3).
- **Surface water** technologies are not identified in this screening process; however, the impact to surface waters is considered in the evaluation of each of the technologies for soil, wetland soils, and sediment.

1.1.5 Other On-Going Activities

Activities undertaken in the vicinity of the study area that are related to the investigations conducted to support this RI include:

- ***OU1* – Cleanup of the source at the OU1-Raymark Facility is complete**. EPA completed a Remedial Investigation and Feasibility Study for controlling sources of waste at the 33-acre Raymark Facility in 1995 describing the type and location of wastes, the risks posed

by those wastes, and discussed possible cleanup solutions. After receiving public comments, EPA decided to consolidate Raymark wastes excavated from the residential areas and the Wooster Middle School at the OU1-Raymark Facility and cap the property. EPA documented this decision in a ROD in June 1995. Once the approach was selected, EPA began the actual cleanup. This included demolition of 15 acres of buildings, consolidation of over 100,000 cubic yards of off-site Raymark waste and the placement of an impermeable cap with a soil gas collection system over the entire property. Solvents, called dense non-aqueous phase liquids (DNAPLs), in the underlying groundwater and gases beneath the cap are treated at facilities on site. Final construction was completed in November 1997. The site is now operated and maintained by the CT DEP.

- ***OU2* – Groundwater Remedial Investigation Activities** – The Remedial Investigation/ Feasibility Study is in progress. This groundwater investigation focuses on a 500-acre study area largely downgradient of the OU1-Raymark Facility that has become contaminated with volatile organic compounds (VOCs) and metals, presumably from the activities conducted on the property. The study area includes businesses that have handled or continue to handle hazardous materials, but investigations are focused on groundwater contaminants that appear to be attributable to the OU1-Raymark Facility. Currently, groundwater in this operable unit is not used as a drinking water supply. In some portions of the study area, contaminants in the groundwater appear to be volatilizing, or discharging to surface water, which may pose a threat to human health or the environment.

  EPA intends to issue a Final Remedial Investigation in 2001 describing contamination and potential health risks for this operable unit. EPA also plans to release a Feasibility Study, analyzing potential cleanup solutions for the area, in 2001/2002. Possible remediation alternatives include no action; limited pumping and treating; and in situ groundwater treatment.

- ***OU4* – Raybestos Ballfield Remedial Investigation Activities** – The Remedial Investigation is complete, and the Feasibility Study is in progress. This area, a former ball field and park, was built using waste fill from the Raymark Facility (see Figure 1-2). In 1992, EPA fenced this area, sampled and removed drummed wastes, and placed a soil

cover over contamination at the site. EPA released a final Remedial Investigation in June 1999 that described the nature and extent of contamination at this area.

EPA plans to release a Feasibility Study in 2001. EPA will select and document its chosen cleanup solution once the Feasibility Study has been reviewed by state and local officials and the public. Cleanup options currently being evaluated for this operable unit include capping existing wastes in place; excavation of all wastes for off-site disposal; treatment of wastes; consolidation of up to 155,000 cubic yards of Raymark wastes from other operable units with existing wastes at OU4 (affording possible reuse of the property); and consolidation of up to 422,000 cubic yards of Raymark wastes from other operable units with existing wastes at OU4 (possibly preventing reuse of the property).

- ***OU5* – Shore Road Activities** – This area is a roughly 4-acre section of Shore Road near the Housatonic Boat Club and the former Shakespeare Theater that borders on the Housatonic River (see Figure 1-2). As a temporary measure, contamination in this area was covered with an interim plastic fabric barrier and wood chips by the CT DEP in 1993. The area was sampled extensively in 1998/1999 and high levels of contamination were found in the surface soils. As the area is contaminated, and because the plastic barrier was beginning to wear and the wood chips were beginning to erode, EPA accelerated cleanup. An Engineering Evaluation/Cost Analysis (EE/CA), completed in June 1999, presented cleanup alternatives. In September 1999, following the public comment period, EPA released an Action Memorandum documenting its cleanup strategy.

  The Action Memorandum stated that EPA will test waste stabilization techniques that could minimize the release of waste dust during the excavation of Shore Road wastes. It also stated that wastes from the Shore Road study area will be deposited in a temporary storage facility within Stratford. During the public comment period on the EE/CA, EPA discussed the Raybestos Memorial Ballfield and/or the Contract Plating Company property as potential temporary storage facilities for the approximately 35,000 cubic yards of soil. Based on the negative public sentiment for waste storage at either location, EPA decided to suspend final remedial action at the study area. Instead an interim removal action was planned. This action included limited temporary capping of contaminated hot spots, relocation of utilities, repair of existing stone riprap revetment, restoration of the western

shoulder and embankment cover along Shore Road, and placement of sheet piling to prevent erosion of materials.

EPA began these excavation and cleanup activities in November 1999 and completed the interim action in July 2000. As EPA completes investigations for other Raymark operable units in Stratford, it will decide on a final remedy for this study area that is compatible with the other operable units.

- ***OU6* – Commercial Properties Activities** – A Remedial Investigation is in progress. This 48-acre area encompasses approximately 22 commercial properties, many along Ferry Creek that received Raymark wastes as fill (see Figure 1-2). Additional properties may be added to the list in the future. These areas are being investigated separately by EPA because commercial landowners face a unique set of issues related to site cleanups under Superfund.

  The type and extent of contamination at these sites will be described in the Remedial Investigation scheduled for release in 2001. A Feasibility Study examining cleanup options for this area is also planned for 2001. The particular cleanup approaches for these properties will vary by property depending on the extent of contamination and the risks to human health and the environment at each property. Cleanup options may include addressing portions of each property containing Raymark wastes through excavation, consolidation, treatment, or capping.

- ***OU7 Activities/OU3 Area II*** – A Draft Final Remedial Investigation has been completed. This area includes approximately 36 acres of wetlands roughly in the center of the Raymark Industries, Inc. Superfund Site (see Figure 1-2). Interim measures for this operable unit have included placement of signs at Selby Pond warning people not to eat eels caught in the pond, and placement of signs warning of contamination within the wetlands. EPA has also excavated contamination from a residential area abutting Selby Pond. EPA sampled these water bodies that make up OU7 in which Raymark wastes have been deposited through dumping and erosion.

A Feasibility Study for these areas is planned to be released in 2001. This area contains approximately 315,000 cubic yards of contaminated soils and fill and approximately 50,000 cubic yards of contaminated sediment. Possible cleanup approaches for this operable unit include capping in place, treatment, excavation, and dredging with wetland restoration.

- ***OU8 Activities/OU3 Area III*** – A Draft Final Remedial Investigation has been completed. This 21-acre area is the southernmost operable unit of the Raymark Industries, Inc. Superfund site, and includes the Beacon Point boat launch area and wetlands along Elm Street (see Figure 1-2). EPA removed contaminated soil from several acres of an Elm Street residential property within this area in 1994. This soil was consolidated and capped at the Raymark Facility. EPA recently completed sampling for these areas.

  The Feasibility Study for these areas is also anticipated in 2001. This area contains approximately 200,000 cubic yards of contaminated soils and fill, and 18,000 cubic yards of sediment. Possible cleanup approaches include capping in place, treatment, excavation, and dredging with wetland restoration.

2.0 Identification and Screening of Technologies
is available
in a separate file (size: 5 MB).

Click here to view.

3.0 Future Assembly of Alternatives
and Tables
are available
in a separate file (size: 5 MB).

Click here to view.

Figures and References
are available
in a separate file (size: 2 MB).

Click here to view.